

REMARKS

The Applicants appreciate the thoroughness with which the subject application continues to be examined and the allowance of claim 12. The Applicants also appreciate the indication of allowable subject matter in claims 2-7 and 9. By this amendment, certain claims have been amended as indicated above to overcome the Examiner's rejections and more concisely claim and describe the present invention. Claims 1-15 remain in the application. The Examiner is invited to reconsider and allow rejected claims 1, 8, 10, 11 and 13-15.

MATTERS RELATED TO THE CLAIMS

Within the first set of claims 1-10, the Examiner has rejected claims 1 and 8 under Section 102(b) as anticipated by Lebreton (4,979,755). Claims 2-7 and 9 have been objected to but would be allowable if re-written in independent form. Claim 10 has been rejected under Section 103(a) as unpatentable over Lebreton in view of Miller (4,420,161).

The Applicants have adopted the Examiner's suggested claim amendment as set forth in paragraph 6 of the Office Action. Thus, claim 1 should now be allowable.

Dependent claims 2-10, all depending directly or indirectly from claim 1, set forth additional inventive features and therefore are in condition for allowance. The Applicants suggest that it is not necessary to re-write the objected to claims 2-7 and 9 in independent form, given that claim 1 from which they depend has been amended as suggested and should therefore be allowable.

Independent claim 11 stands rejected under Section 102(b) as anticipated by Lebreton. In quoting claim 11 in the Office Action of June 16, 2005, the Examiner apparently has neglected to incorporate the amendments to claim 11 that the Applicants submitted with their April 4 Amendment. In the April 4 amendment the Applicants amended the last paragraph of the claim to read, "at least $2N + 1$ flow dams each supported by one of the seal segments."

Lebreton discloses affixing a flow dam 26 at a leading edge and a trailing edge of each seal carrier 14. See Lebreton's Figure 1. As the Applicants state in the paragraph beginning at line 13 on page 8 of the specification, "multiple flow dams 40 can be disposed at arbitrary intervals at any circumferential location around the shaft 10. Any number of flow dams 40 can be employed to reduce swirl as the number is not limited by the number of seal segments 14, as disclosed by

the prior art." Since Lebreton discloses a maximum of two flow dams per seal carrier, the Applicants' invention as set forth in amended claim 11 is distinguished therefrom as the Applicants claim a number of flow dams equal to at least twice the number of seal carriers plus 1. By affixing his flow dams to only the leading and trailing edges of the seal carrier (seal segment) Lebreton is limited to $2N$ flow dams in the seal ring. Only the Applicants teach $2N + 1$ flow dams in the seal ring.

It is further noted that Lebreton's placement of flow dams at the leading and trailing edges of a seal carrier results in back-to-back flow dams where the leading edge of one seal carrier contacts the trailing edge of the adjacent seal carrier. These back-to-back flow dams provide little or no additional benefit than a single flow dam at the plane of contact between leading and trailing edges of adjacent seal carriers. By comparison, each of the Applicant's $2N + 1$ flow dams is operative to reduce swirl.

Further with respect to claim 11, it is respectfully submitted that there is no disclosure in Lebreton that renders the Applicants' invention as set forth in amended claim 11 obvious under Section 103(a) since Lebreton's technique for attaching the flow dams to the seal carriers limits the number of flow dams to twice the number of seal carriers. Only the Applicants teach a technique for providing a number of flow dams more than twice the number of seal carriers.

Independent claim 13 and its dependent claims 14 and 15 have also been rejected under Section 102(b) as anticipated by Lebreton. In rejecting this claim, the Examiner suggests that Lebreton's groove 32 formed on each end of each segment of the seal ring 12 is equivalent to the Applicants' step of, "forming a fin groove in each one of the seal fins."

The Applicants suggest that the seal fins are not equivalent to the segments of the seal ring 12. As Lebreton explains beginning at line 52 of column 4, the seal ring 12 comprises a plurality of seal carriers 24. Beginning at line 65 of column 4, he explains that spaced-apart annular teeth (seal legs) are mounted on a radially inward side of each seal carrier to provide an effective seal against axial steam flow. As the Applicants state beginning at line 19 on page 4, "[a] plurality of substantially parallel spaced-apart annular seal fins 20 are mounted on a radially inward face 14B of each seal segment 14." Thus as set forth in claim 13, the Applicant's fin grooves are formed in the seal fins (referred to as annular teeth or seal legs by Lebreton) and not within each segment of the seal ring 12 as the Examiner suggests. The Examiner is also referred

to allowable amended claim 1, now referring to "seal fins defining a fin groove in the fins." Thus it is respectfully suggested that independent claim 13 is patentably distinct from Lebreton.

As to dependent claims 14 and 15, each includes one or more inventive elements that further distinguish the invention over the art of record. These claims are therefore in condition for allowance.

There is also no disclosure in Lebreton that would render the Applicants' invention as set forth in amended claim 13 and claims 14 and 15 obvious under Section 103(a) since Lebreton discloses flow dams disposed within a groove at the leading edge of the seal carrier and alternatively, along the leading and trailing edges of the seal carrier. Only the Applicants teach, "forming a fin groove in each one of the seal fins," and "disposing a flow dam within the fin groove."

The Applicants have attempted to comply with all the points raised in the Office Action and it is believed that those claims not currently allowed, i.e., claims 1-11 and 13, are now in condition for allowance. In view of the foregoing amendments and remarks, it is respectfully requested that the Examiner's rejections have been overcome. The Examiner is invited to reconsider these rejections and issue a Notice of Allowance for all pending claims.

If a telephone conference will assist in clarifying or expediting this Amendment or the claim amendments made herein, the Examiner is invited to contact the undersigned at the telephone number below.

Respectfully submitted,


John L. DeAngelis, Jr.

Reg. No. 30,622

Beusse Brownlee Wolter Mora & Maire, P.A.

390 North Orange Avenue, Suite 2500

Orlando, FL 32801

(407) 926-7710